SPECIAL CONDITIONS

1. The Contractor shall examine the site and all conditions thereon and shall take into consideration all such conditions as may affect the work under the contract.

2. The Contractor shall have a valid Montana Contractor's License.

3. The Contractor shall warrant and guarantee all work performed under this Contract for a period of two (2) years from the date of substantial completion, unless the work has been abused by or neglected by the staff of the Montana Fish, Wildlife and Parks, Great Falls, MT.

4. Damage: Any work damaged by failure to provide adequate protection shall be removed and replaced at the Contractor's expense. Any damage to any existing structures or landscaping caused by the Contractor or their negligence shall be their obligation to repair at no cost to the Owner.

5. Toilets: The Contractor shall supply their own toilet facilities and shall not use public or staff toilets located within the FW&P complex.

6. Clean-up: The Contractor shall remove all temporary protection and all debris attributed to the execution of the Contract.

7. Demolition and construction waste must be removed from the site each day or placed in Contractor furnished waste receptacles. The Owner's waste receptacles shall not be use by the Contractor. Construction waste includes roofing nails as a result of the removal of the existing shingles.

8. The Contractor shall be responsible for all building permits, fees, and licenses required for the work in this Contract.

9. Telephone: The Contractor shall provide a cellular telephone for the project superintendent's use and provide the Engineer with the phone number.

10. The Contractor or workman shall not park private vehicles or equipment in parking spaces designated for visitor or employee use. Designated parking for the Contractor, workmen, and equipment shall be determined by the Owner's project representative.

11. The contractor shall not drive vehicles or equipment on the yard areas or off established roads unless approved by the Owner's project representative. Damage to the landscape areas shall be repaired by the Contractor at no cost to the Owner.

12. The Contractor shall schedule work between the hours of 8:00 a. m. to 5:00 p.m. on working days Monday through Friday, any adjustments to this schedule must be approved by the Owner's project representative.

13. Undesirable language and other such devices are hereby specifically prohibited on the project site.

14. Radios and loud conversation will not be allowed on the project.

END OF SECTION

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Access to site.
4. Coordination with occupants.
5. Work restrictions.
6. Specification and drawing conventions.
7. Miscellaneous provisions.

B. Related Requirements:

1. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

2. Work shall meet or exceed all specifications set forth in the project manual, the manufacturer's specifications, and the Montana Public Works Standard Specifications. If there is a conflict between specifications, the more stringent will apply, unless otherwise specifically authorized by the Owner.

1.2 PROJECT INFORMATION

A. Project Identification: Giant Springs Hatchery - Residential Houses Re-roof
1. Project Location:
4805 Giant Springs Road
Great Falls, Montana 59405

B. Owner: State of Montana Fish Wildlife & Parks, Great Falls, Montana.

1. Owner's Representative:

Phillip Jagoda, Project Manager
State of Montana Fish, Wildlife and Parks
Design & Construction Bureau.
1522 Ninth Avenue
Helena, Montana
Phone: (406) 841-4009

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. The work consists of removing existing asphalt shingles and related materials from three residential homes, one garage, the fish health lab, and the Annex building at the Giant Springs Hatchery, located at 4805 Giant Springs Road., Great Falls, MT 59405. Replace the roofing with underlayment and either laminated (architectural) asphalt shingles or delta rib metal roofing.

2. With the exception of new fascia, new soffit, new soffit venting, and new gutters (if required), all work associated with the re-roofing project and included in these specifications shall be considered incidental, including but not limited to: underlayment, ice & water barrier, drip edge, flashing, ridge vents, gable end attic vents, roof vents, rain caps, existing roofing removal & disposal, roofing preparation, site protection, and associated work. Specifically, the following locations consist of:

    a. 4805 Giant Springs Road (Green House)
        - R&R flashing – pipe jacks (3)
        - R&R attic vents gable end (2)
        - Detach & reset digital satellites (2)
        - R&R rain cap
        - R&R furnace vent-rain cap & storm collar
        - R&R roof vent – turtle type

    b. 4809 Giant Springs Road (Gray House)
        - R&R flashing – pipe jacks (5)
        - R&R furnace vent-rain cap only
        - R&R roof vent – turtle type
        - Detach & reset digital satellite

    c. 4813 Giant Springs Road (Tan House w/attached garage)
        - R&R flashing – pipe jacks (3)
        - Detach & reset roof vent – turtle type (9)

    d. Detached Garage
        - R&R outside/inside corner 29 gauge

    e. Annex Building
        - R&R roof vent turtle type (1)
        - R&R flashing – pipe jacks (2)
        - R&R furnace vent rain cap and storm collar (1)

    f. Fish Health Lab
        - R&R roof vent turtle type (2)
        - R&R valley metal (16 LF)
        - R&R flashing pipe jack (2)
        - R&R furnace vent rain cap and storm collar (1)

3. It is the contractor's responsibility to confirm dimensions and layout for quantifying materials. Slope factor, waste, and overlap is considered incidental to the project and will not be paid as extra.

B. Type of Contract.

1. Project will be constructed under a single prime contract.

1.4 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated by requirements of this Section.

B. Use of Site: Limit use of Project site to work in areas of re-roofing. Do not disturb portions of Project site beyond areas in which the Work is indicated.
1. Driveways, Walkways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, the public, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.5 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner will occupy site and existing building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate safe Owner and the Public usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.6 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Project work will be limited to the hours of 8:00 a.m. to 5:00 p.m., Monday through Friday. Additional hours or working days can be approved by the Owner with prior notice, Contractor must give Owner a minimum of two (2) days notice for working hours outside of those indicated above.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than two days in advance of proposed disruptive operations.

E. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet (8 m) of entrances, operable windows, or outdoor-air intakes.

1.7 MISCELLANEOUS PROVISIONS

A. See Special Conditions.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:

1. Division 01 Section "Summary" for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to Engineer and authorities having jurisdiction.

B. Electric Power Service from Existing System: Electric power from Owner's existing system may be available for use without metering and without payment of use charge. Contractor must review with Owner before start of work. Provide connections and extensions of services as required for construction operations. Contractor must plan on providing portable generators for the project.

1.3 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service.

1.4 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

A. Field Offices, General: Prefabricated or mobile units. Contractor’s option- Field office not required at project site

B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations. Contractor's option – Storage shed not required at project site.

C. Toilet Facility: Locate as directed by Owner's project representative.

2.2 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Connect to existing service.

B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

1. Toilets: Use of Owner's existing toilet facilities will not be permitted.

C. Electric Power Service: Connect to Owner's existing electric power service, if approved by Owner. Maintain equipment in a condition acceptable to Owner. Provide Contractor supplied portable generators.

D. Telephone Service: Provide job superintendent with a cellular phone to use on the job site or away from the job site.

3.3 SUPPORT FACILITIES INSTALLATION

A. Parking: Use designated areas of Owner's existing parking areas for construction personnel.

B. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. The Owner's waste receptacles shall not be used by the Contractor.

C. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

C. Tree and Plant Protection: Protect vegetation from damage from construction operations. Replace vegetation damaged from work in this Contract. Replace damaged trees and plants as direct by the MT FW&P landscape architect and/or Engineer. All costs are to be borne by Contractor.

D. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses.

3.5 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Termination and Removal: Remove each temporary facility when need for its service has ended. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

END OF SECTION

SECTION 070150 - PREPARATION FOR RE-ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Roof tear-off.

1.2 SUBMITTALS

A. Contractor shall submit to the Owner the following information at least 5 business days prior to starting work:
   1. Procedures for protecting shrubs, trees, HVAC units, and other utilities or landscaping features which may be impacted by the reroofing project.
   2. Procedures to allow a safe working environment for FWP employees and continued service to the public. The buildings proposed to be reroofed are continuously used by FWP employees and their families.
   3. Nail removal management, clean-up procedures, and disposal container locations.

1.3 PERMITS

A. Contractor will be responsible to obtain and pay for all necessary permits to complete the work.

B. Copies of the permit(s) shall be provided to the Owner before the start of any work.

1.4 PROJECT CONDITIONS

A. Owner will occupy buildings immediately below reroofing areas. Conduct reroofing so Owner's operations will not be disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.

B. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, HVAC units, and landscaping from damage or soiling from reroofing operations.

C. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit work to proceed without water entering existing roofing system or building.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work, if required. Cover air-intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.

3.2 ROOF TEAR-OFF

A. General: Notify Owner each day of extent of roof tear-off proposed for that day.

B. Contractor to remove existing cedar shake shingles and underlayment down to roof decking.

C. Exception to IBC 1511.3: Where the existing roof assembly includes an ice barrier membrane that is adhered to the roof deck (and could result in unnecessary damage to the roof decking), the existing ice barrier membrane shall be permitted to remain in place and covered with an additional layer of ice barrier membrane in accordance with IBC Section 1507.

3.3 DECK PREPARATION

A. Inspect deck after tear-off of wood shake roofing system.

B. If broken or loose fasteners that secure deck panels to one another or to structure are observed or if deck appears or feels inadequately attached, immediately notify Owner's representative. Do not proceed with installation until directed by Owner's representative. Minor work to re-secure decking in areas where fasteners are needed is allowed without prior approval.

C. If deck surface is not suitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify Owner's representative. Do not proceed with installation until directed by Owner's representative.

3.4 EXISTING BASE FLASHINGS

A. Remove and replace existing base flashings around curbs and penetrations as required.

B. Remove and replace drip edge around perimeter as required.

C. Do not damage metal counterflashings that are to remain. Replace metal counterflashings damaged during removal with counterflashings of same metal, weight or thickness, and finish. Metal counterflashings determined to be damaged or not able to be reused by the Owner's Representative, shall also be replaced.

3.5 NAIL REMOVAL AND COLLECTION

A. Contractor will be required to control the collection of removed nails and minimize the amount of nails that may land onto sidewalks, landscaped areas, and gravel/paved parking areas. Control procedures may consist of using tarps or other means to collect the nails as the existing shingles are removed.

B. Contractor will be required to police the grounds at the end of each work day and at the end of the project completion for stray removed nails. Magnets or other collection devices should be used to properly collect nails. Owner will inspect and approve the clean-up areas at the end of the project before final payment will be approved.

3.6 DISPOSAL

A. All materials removed become the property of the Contractor and is therefore responsible for disposal and removal from the site. Collect and place demolished materials in Contractor furnished containers. Promptly dispose of demolished materials at permitted facility, in accordance with applicable regulations. Do not allow demolished materials to accumulate on-site.

B. The function of the buildings, continued use by employees, and service to the public will require the Contractor to clean the grounds on a daily basis, and not allow removed materials to accumulate on the landscaped grounds, sidewalks, or parking areas.

C. Transport and legally dispose of demolished materials off Owner's property.

END OF SECTION

SECTION 073113 – LAMINATE SHINGLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Laminate (Architectural) shingles.
2. Synthetic Underlayment.

1.2 SUBMITTALS

A. Product Data: Manufacturer's data sheets and detail drawings for each product to be used, including:
1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Product literature.
4. Installation methods.

B. Samples: For each exposed product and for each color and blend specified.

C. Product test reports.

D. Warranties: Sample of special warranties.

1.3 QUALITY ASSURANCE

A. Fire-Resistance Characteristics: Where indicated, provide asphalt shingles and related roofing materials identical to those of assemblies tested for fire resistance per test method below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.

1. Exterior Fire-Test Exposure: Class “A” ASTM E 108-91 or UL 790, for application and roof slopes indicated.

B. Wind-Resistance-Test Characteristics: Provide products identical to those that have passed test ASTM D3161 modified to 110 mph.

C. Manufacturer Qualifications: Provide all primary roofing products, including shingles, underlayment, leak barrier, and ventilation, by a single manufacturer.

D. Pre-installation Conference: The Installer and a Representative of the manufacture and fabricators involved in the affect by installation of the roofing shingle shall attend. Conduct the conference at the beginning of the roofing shingle installation activity to allow the Representative of the shingle manufacture to observe installation of the laminate shingles. Advise the Owner’s project representative of scheduled meeting date.

E. All work shall comply with federal, state, and local codes, including but not limited to the International Building Code (IBC), Uniform Building Code (UBC), ASTM methods, or other regulations or codes as required. If there is a conflict between codes, the more stringent code will apply, unless specifically authorized by the Owner.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in manufacturer's unopened bundles with labels intact and legible.

B. Store all products in manufacturer's unopened, labeled packaging until they are ready for installation.

C. Handle and store materials on site to prevent damage. Store products in a protected, ventilated area, at temperature not more than 110 degrees Fahrenheit (43 degrees Celsius); do not store near steam pipes, radiators, or other structures which may introduce excessive heat.

D. Store bundles on a flat surface. Do not stack product more than 2 pallets high. If stacking 2 pallets high, use separator boards to protect the shingles below. Store all rolls on end.

E. Do not install underlayment or shingles on wet surfaces.

F. Store and dispose of solvent-based materials in accordance with all federal, state and local regulations.

G. For rooftop loading, lay shingle bundles flat. Do not bend over the ridge.

1.5 PROJECT CONDITIONS

A. Proceed with work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturer's recommendations, and not expose roof sheathing to precipitation or extreme weather conditions. Contractor will be responsible for maintaining a watertight work environment to the underlying Owner's office spaces.

1.6 WARRANTY

A. Special Warranty: Standard form in which the Contractor agrees to repair or replace laminated shingles that fail in materials or workmanship within specified 2 year warranty period. See special warranty at the end of this Section.

1. Material Warranty Period: Minimum 30 year Limited Warranty from date of Substantial Completion, prorated, with first 10 years non-prorated.
2. Algae-Discoloration Warranty Period: Asphalt shingles will not discolor 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 LAMINATE FIBERGLASS SHINGLES

A. Laminated-Strip Asphalt Shingles (Architectural): ASTM D 3462, laminated, multi-ply overlay construction, glass-fiber, ceramic-granule surfaced and self-sealing.
   1. Basis-of-Design Product: Subject to compliance with requirements, provide product or comparable product by one of the following:
      a. Owens Corning
      b. Atlas Roofing Corporation.
      c. CertainTeed Corporation.
      d. GAF Materials Corporation.
      e. IKO.
      f. Malarkey Roofing Products.
      g. TAMKO Roofing Products, Inc.
   2. Algae Resistance: Granules treated to resist algae discoloration.
   3. Color and Blends: As selected by Owner from manufacturer's full range of color and blends.

B. Hip and Ridge Shingles: Provide hip and ridge shingles of width sufficient to cover vent material and color to match roofing shingle.

2.2 UNDERLAYMENT MATERIALS

A. Underlayment: Fiberglass reinforced felt underlayment, 30# ASTM felt.
   1. Test and Standards
      a. Wrinkle resistant, water resistant, breather type cellulose/glass fiber composite roofing underlayment.
      b. Standards/Qualifications: ASTM D226 (Type II), ASTM D4869 (Type IV), ASTM D6757, UL Class A and Class C fire rating.

B. Self-Adhering Ice & Water Sheet Underlayment: Self-adhering, self-sealing, bituminous ice and water barrier.
   1. Test, Properties & Standard
      a. ASTM D1970, ASTM E108/UL 790 (Class A Fire Resistance), ICC-ESR 1783, CCMC 13403-R,
      b. Width per roll: 36 inches

2.3 RIDGE VENTS

A. Shingle-Over Ridge Vent: Manufacturer's standard, rigid section high-density polypropylene or other UV-stabilized plastic ridge vent with nonwoven geotextile filter strips and external deflector baffles; for use under ridge shingles.
   1. Basis-of-Design Product: Subject to compliance with requirements, provide comparable product by one of the following, or an approved equal provided by shingle manufacturer:

      a. Air Vent, Inc.; a Gibraltar Industries company.

b. Core-A-Vent, Inc.
c. Trimline Building Products - High profile, 1” thick Shingle Over Ridge Vent

2. Minimum Net Free Area: 18 sq. inches/ft.
3. Width: Width of manufacturers ridge shingle.
4. Thickness: 1 inch.

2.4 ACCESSORIES

A. Asphalt Roofing Cement: ASTM D 4586, Type II, asbestos free.

B. Roofing Nails: ASTM F 1667; aluminum, stainless-steel, or hot-dip galvanized-steel wire shingle nails, minimum 0.120-inch- (3-mm-) diameter, barbed shank, sharp-pointed, with a minimum 3/8-inch- (9.5-mm-) diameter flat head and of sufficient length to penetrate 3/4 inch (19 mm) or extend at least 1/8 inch (3 mm) through OSB or plywood sheathing. Only hand nail or pneumatic driven nails will be allowed, staple guns will not be allowed.

1. Where nails are in contact with metal flashing, use nails made from same metal as flashing.

C. Felt Underlayment Nails: Plastic cap roofing nails having a minimum 1” diameter plastic cap smooth leg nail as recommended by underlayment manufacturer. No staples allowed.

2.5 METAL FLASHING AND TRIM

A. General: Comply with requirements in Division 07 Section "Roof Specialties."

1. Sheet Metal: Zinc-tin alloy-coated steel with Kynar finish, Match color of fascia.

B. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of the item.

PART 3 - EXECUTION

3.1 UNDERLAYMENT INSTALLATION

A. General: Comply with underlayment manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.

B. Self-Adhering Ice and Water Barrier Underlayment: Install, wrinkle free, on roof deck at the eaves and rake. Comply with low-temperature installation restrictions of underlayment manufacturer if applicable. Install at locations as required, lapped in direction to shed water. Lap sides not less than 3-1/2 inches (89 mm). Lap ends not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses. Roll laps with roller. Cover roof deck from outer edge parallel with and starting at the eave to a point at least 24-inches inside the exterior wall line of the building as per IBC 1507.2.8.2.

C. Single-Layer Felt Underlayment: Install on roof deck parallel with and starting at the eaves. Lap sides a minimum of 2 inches (50 mm) over underlying course. Lap ends a minimum of 4 inches (100 mm). Stagger end laps between succeeding courses at least 72 inches (1830 mm) or as recommended by synthetic roofing underlayment manufacturer. Fasten with felt underlayment plastic cap roofing nails as recommended by manufacturer.

1. Install felt underlayment on roof deck not covered by self-adhering sheet underlayment. Lap sides of felt over self-adhering sheet underlayment not less than 3 inches (75 mm) in direction to shed water. Lap ends of felt not less than 6 inches (150 mm) over self-adhering sheet underlayment.
2. Install fasteners at a minimum per surface markings spaced 6” o. c. in the vertical and horizontal laps and 12” o. c. along the center of the roll as marked.

3.2 METAL FLASHING INSTALLATION

A. General: Install metal flashings and other sheet metal to comply with requirements in Division 07 Section "Roof Specialities."

1. Install metal flashings according to recommendations in ARMA's "Residential Asphalt Roofing Manual" and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."

3.3 LAMINATE SHINGLE INSTALLATION

A. General: Install shingles according to manufacturer's written instructions, recommendations in ARMA's "Residential Asphalt Roofing Manual," and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."

B. Install starter strip along lowest roof edge and along rake.

C. Install first and successive courses of shingles stepping diagonally up and across roof deck with manufacturer’s recommended offset at each succeeding course. Maintain uniform exposure of shingles at each succeeding course.

D. Fasten laminate shingle strips with roofing nails located according to manufacturer's written instructions. Minimum of four (4) fasteners for each shingle. Fasteners must not be overdriven to cut into the shingle or under driven. Install nails perpendicular to the roof slope.

E. Closed-Cut Valleys: Extend asphalt shingle strips from one side of valley 12 inches (300 mm) beyond center of valley. Use one-piece shingle strips without joints in valley. Fasten with extra nail in upper end of shingle. Install asphalt shingle courses from other side of valley and cut back to a straight line 2 inches (50 mm) short of valley centerline. Trim upper concealed corners of cut-back shingle strips.

F. Ridge Vents: Install continuous shingle–over shingle over vent according to manufacturer's written instructions. Fasten with roofing nails of sufficient length to penetrate sheathing. Fasten ridge cap shingle to cover ridge vent without obstructing airflow.

G. Ridge and Hip Cap Shingles: Maintain same exposure of cap shingles as roofing shingle exposure. Lap cap shingles at ridges to shed water away from direction of prevailing winds. Fasten with roofing nails of sufficient length to penetrate sheathing.

END OF SECTION

SECTION 07 4113

METAL ROOF PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Architectural roofing system of preformed steel panels.

B. Attachment system.

C. Finishes.

D. Accessories.

1.02 RELATED REQUIREMENTS

A. Not Used.

1.03 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.

B. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2009.

C. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2013.

D. ASTM D4869/D4869M - Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing; 2015.

E. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2014. F.

ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings; 2011.

G. IAS AC472 - Accreditation Criteria for Inspection Programs for Manufacturers of Metal Building Systems; 2012.

H. ICC-ES AC188 - Acceptance Criteria for Roof Underlayments; 2012.

1.04 SUBMITTALS

A. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Storage and handling requirements and recommendations.
   2. Installation methods.
   3. Specimen warranty.

B. Shop Drawings: Include layouts of roof panels, details of edge and penetration conditions, spacing and type of connections, flashings, underlayments, and special conditions.
   1. Show work to be field-fabricated or field-assembled.

C. Selection Samples: For each roofing system specified, submit color chips representing manufacturer's full range of available colors and patterns.

D. Manufacturer Qualification Statement: Provide documentation showing metal roof panel fabricator is accredited under IAS AC472.

E. Warranty: Submit specified manufacturer's warranty and ensure that forms have been completed in State of Montana Fish, Wildlife & Parks's name and are registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Provide strippable plastic protection on prefinished roofing panels for removal after installation.

B. Store roofing panels on project site as recommended by manufacturer to minimize damage to panels prior to installation.

1.07 WARRANTY

A. Finish Warranty: Provide manufacturer's special warranty covering failure of factory-applied exterior finish on metal roof panels and agreeing to repair or replace panels that show evidence of finish degradation, including significant fading, chalking, cracking, or peeling within specified warranty period of five years from Date of Substantial Completion.

B. Waterproofing Warranty: Provide manufacturer's warranty for weathertightness of roofing system, including agreement to repair or replace roofing that fails to keep out water within specified warranty period of five years from Date of Substantial Completion.

C. Contractor's Warranty: Provide contractor's warranty for weathertightness of roofing system, including agreement to repair or replace roofing that fails to keep out water within specified warranty period of 2 years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 ARCHITECTURAL METAL ROOF PANELS

A. Architectural Metal Roofing: Provide complete engineered system complying with specified requirements and capable of remaining weathertight while withstanding anticipated movement of substrate and thermally induced movement of roofing system.

B. Metal Panels: Factory-formed panels with factory-applied finish.
   1. Type: Single skin, uninsulated.
   2. Steel Panels:
      a. Steel Thickness: Minimum 24-gauge (0.24 inch) or minimum 26-gauge with 80 ksi minimum yield strength.
   2. Profile: Vertical, Delta Rib Style.
   3. Texture: Smooth.
   4. Length: Full length of roof slope, without lapped horizontal joints.
   5. Width: Maximum panel coverage of 16 inches.

2.02 ATTACHMENT SYSTEM

2.03 FABRICATION

A. Panels: Provide factory or field fabricated panels with applied finish and accessory items, using manufacturer's standard processes as required to achieve specified appearance and performance requirements.

B. Joints: Provide captive gaskets, sealants, or separator strips at panel joints to ensure weathertight seals, eliminate metal-to-metal contact, and minimize noise from panel movements.

2.04 FINISHES

A. Fluoropolymer Coating System: Manufacturer's standard multi-coat thermocured coating system, including minimum 70 percent fluoropolymer color topcoat with minimum total dry film thickness of 0.9 mil; color and gloss as selected from manufacturer's standards.

2.05 ACCESSORIES

A. Miscellaneous Sheet Metal Items: Provide flashings, gutters, downspouts, trim, moldings, closure strips, preformed crickets, caps, and equipment curbs of the same material, thickness, and finish as used for the roofing panels. Items completely concealed after installation may optionally be made of stainless steel.

B. Rib and Ridge Closures: Provide prefabricated, close-fitting components of steel with corrosion resistant finish or combination steel and closed-cell foam.

C. Sealants:
   1. Exposed Sealant: Elastomeric; silicone, polyurethane, or silyl-terminated polyether/polyurethane.
   2. Concealed Sealant: Non-curing butyl sealant or tape sealant.
   3. Seam Sealant: Factory-applied, non-skinning, non-drying type.

D. Underlayment: Synthetic non-asphaltic sheet, intended by manufacturer for mechanically fastened roofing underlayment without sealed seams.
   1. Type: Woven polypropylene with anti-slip polyolefin coating on both sides.
   2. Minimum Requirements: Comply with requirements of ICC-ES AC188 for non-self-adhesive sheet.
   3. Self Sealability: Passing nail sealability test specified in ASTM D1970/D1970M.
   4. Flammability: Minimum of Class A, when tested in accordance with ASTM E108.
   5. Low Temperature Flexibility: Passing test specified in ASTM D1970/D1970M.
   6. Water Vapor Permeance: Vapor retarder; maximum of 1 perm, when tested in accordance with ASTM E96/E96M Procedure A (desiccant method).
   7. Performance: Meet or exceed requirements for ASTM D226/D226M, Type II asphalt-saturated organic felt.
   8. Liquid Water Transmission: Passes ASTM D4869/D4869M.
   9. Functional Temperature Range: Minus 70 degrees F to 212 degrees F.
   10. Fasteners: As specified by manufacturer and building code qualification report or approval.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation of preformed metal roof panels until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Engineer of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Broom clean wood sheathing prior to installation of roofing system.

B. Coordinate roofing work with provisions for roof drainage, flashing, trim, penetrations, and other adjoining work to assure that the completed roof will be free of leaks.

C. Remove protective film from surface of roof panels immediately prior to installation. Strip film carefully, to avoid damage to prefinished surfaces.

D. Separate dissimilar metals by applying a bituminous coating, self-adhering rubberized asphalt sheet, or other permanent method approved by roof panel manufacturer.

E. Where metal will be in contact with wood or other absorbent material subject to wetting, seal joints with sealing compound and apply one coat of heavy-bodied bituminous paint.

3.03 INSTALLATION

A. Overall: Install roofing system in accordance with approved shop drawings and panel manufacturer's instructions and recommendations, as applicable to specific project conditions. Anchor all components of roofing system securely in place while allowing for thermal and structural movement.
   1. Install roofing system with concealed clips and fasteners, except as otherwise recommended by manufacturer for specific circumstances.
   2. Minimize field cutting of panels. Where field cutting is absolutely required, use methods that will not distort panel profiles. Use of torches for field cutting is absolutely prohibited.

B. Accessories: Install all components required for a complete roofing assembly, including flashings, gutters, downspouts, trim, moldings, closure strips, rib closures, ridge closures, and similar roof accessory items.

C. Install roofing felt and building paper slip sheet on roof deck before installing preformed metal roof panels. Secure by methods acceptable to roof panel manufacturer, minimizing use of metal fasteners. Apply from eaves to ridge in shingle fashion, overlapping horizontal joints a minimum of 2 inches and side and end laps a minimum of 3 inches. Offset seams in building paper and seams in roofing felt.

D. Roof Panels: Install panels in strict accordance with manufacturer's instructions, minimizing transverse joints except at junction with penetrations.
   1. Form weathertight standing seams incorporating concealed clips, using an automatic mechanical seaming device approved by the panel manufacturer.
   2. Install sealant or sealant tape, as recommended by panel manufacturer, at end laps and side joints.

3.04 CLEANING

A. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to the finish.

3.05 PROTECTION

A. Do not permit storage of materials or roof traffic on installed roof panels. Provide temporary walkways or planks as necessary to avoid damage to completed work. Protect roofing until completion of project.

B. Touch-up, repair, or replace damaged roof panels or accessories before Date of Substantial Completion.

END OF SECTION

SECTION 077100 - ROOF SPECIALTIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Roof-edge flashings.
   2. Roof-edge drainage systems.
   3. Roof fascia & drip edge.
   4. Plumbing vents.

1.2 PERFORMANCE REQUIREMENTS

A. Approvals' Listing: Manufacture and install roof-edge flashings and fascia approved for windstorm classification, Class 1-90.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For roof specialties. Include plans, elevations, expansion-joint locations, keyed details, and attachments to other work. Distinguish between plant- and field-assembled work.

C. Samples: For each exposed product and for each color and texture specified.

D. Product test reports.

1.4 WARRANTY

A. Special Warranty on Painted Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace roof specialties that show evidence of deterioration of factory-applied finishes within 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 EXPOSED METALS

A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation.

   1. Surface: Smooth, flat finish.

2. Exposed Coil-Coated Finishes: Pre-painted by the coil-coating process to comply with ASTM A 755/A 755M. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
   a. Two or Three-Coat Fluoropolymer: AAMA 621. System consisting of primer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat and clear topcoat containing not less than 70 percent PVDF resin by weight. Manufacturer's standard Fluoropolymer finish.

2.2 CONCEALED METALS

A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation.

2.3 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Sheet: Minimum 45 mil. thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer. Similar to Titanium "PSU" 30.

1. Thermal Stability: ASTM D 1970; stable after testing at 240 deg F (116 deg C).
2. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F (29 deg C).

B. Felt Underlayment: No. 30, un-perforated organic felt complying with Type I, ASTM 226.

1. Fasteners: Manufacturer's recommended fasteners, suitable for fascia application and design to meet metal fascia manufacturer's requirements

2.4 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items required by manufacturer for a complete installation.
   1. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to meet performance requirements.

B. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

2.5 ROOF-EDGE FLASHINGS & DRIP EDGE

A. Roof-Edge Fascia: Manufactured, two-piece, roof-edge fascia consisting of snap-on metal fascia cover in section lengths not exceeding 10 feet or as recommended by manufacturer and a continuous formed- or extruded-aluminum anchor bar with integral drip-edge cleat to engage fascia cover. Provide matching corner units.
   1. Basis-of-Design Product: Subject to compliance with requirements, provide product designated or comparable product by one of the following:

a. Berridge Manufacturing Company
b. Metal-Era, Inc.
c. Metal-Fab Manufacturing, LLC.
d. National Sheet Metal Systems, Inc.
e. Hickman Company – 24 ga. “Special Condition”

2. Fascia Cover: Fabricated from the following exposed metal:
   a. Zinc-Coated Steel: 24 gauge.

3. Corners: Factory mitered and continuously welded or manufacturer’s standard prefabricated corners.
4. Splice Plates: Concealed, of same material, finish, and shape as fascia cover.
5. Fascia Accessories: Fascia extenders with continuous hold-down cleats. Fasteners by others are to have minimum pullout strength of 250# per fastener.

B. Drip Edge:
   1. Basis-of-Design Product: Subject to compliance with requirements, provide product designated or comparable product by one of the following:
      a. Carlisle Metal Products
      b. Berger Building Products

   2. Decorative metal Drip Edge with continuous cleat. Cleat to be pre-punched for precise attachment.
      a. Drip Edge Material:
         1. .040 inch (1 mm) thick formed aluminum.
         2. 24 gauge Galvalume coated steel.
         3. 24 gauge zinc coated steel
      b. Finish:
         1. 35 year color as selected by the Owner from manufacturer’s product color chart.
      c. Length:
         1. Standard 10’-0”(3.048m), or up to 20’-0”(6.096m) maximum.
      d. Attachment:
         1. 1-1/4” Stainless Steel Ring Shank Nails provided by manufacturer attached to substrate at 12” on center through cleat.
         2. Certified per ANSI/SPRI ES-1 Standard to a design pressure of 390 lbs./ft^2 (24GA Steel) and 410 lbs./ft^2 (.040” AL) to comply with the International Building Code.

2.6 ROOF-EDGE DRAINAGE SYSTEMS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. Architectural Products Company.
   2. ATAS International, Inc.
   3. Hickman Company, W. P.
   4. Metal-Era, Inc.
   5. Metal-Fab Manufacturing, LLC.
   6. MM Systems Corporation.
   7. National Sheet Metal Systems, Inc.

8. Roof Drainage Components & Accessories, Inc.

B. Gutters: Manufactured in uniform section lengths not exceeding 12 feet (3.6 m) with matching corner units, ends, outlet tubes, and other accessories. Elevate back edge at least 1 inch (25 mm) above front edge. Furnish flat-stock gutter straps, gutter brackets, expansion joints, and expansion-joint covers fabricated from same metal as gutters.

1. Fabricate from the following exposed metal:
   a. Zinc-Coated Steel – 24 gauge, color metal to match fascia

2. Gutter Profile: Style “D” according to SMACNA's "Architectural Sheet Metal Manual."
3. Corners: Factory mitered and watertight.
4. Gutter Supports: Manufacturer's standard supports and wedges as selected by Architect or Owner’s project representative with finish matching the gutters.

C. Downspouts: Corrugated rectangular complete with smooth-curve elbows, manufactured from the following exposed metal. Furnish with metal hangers, from same material as downspouts, and anchors. Locate new downspouts at location of existing downspouts that are scheduled to be removed.
1. Zinc-Coated Steel: 24 gauge prefinished to match color of gutter.

D. Zinc-Coated Steel Finish: Two or three coat fluoropolymer finish or as per manufacturer’s standard finish.

1. Color: As selected by Owner from manufacturer's full range.

2.7 PLUMBING VENTS

A. All existing vents shall remain.

B. Furnish and install new rubber boots around existing plumbing vents with equal or improved quality rubber boots.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. General: Install roof specialties according to manufacturer's written instructions. Anchor roof specialties securely in place, with provisions for thermal and structural movement. Use fasteners, protective coatings, separators, sealants, and other miscellaneous items as required to complete roof-specialty systems.

1. Install roof specialties level, plumb, true to line and elevation; with limited oil-canning and without warping, jogs in alignment, buckling, or tool marks.
2. Provide uniform, neat seams with minimum exposure of sealant.
3. Install roof specialties to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before manufacture.
4. Torch cutting of roof specialties is not permitted.

5. Install underlayment: Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches (50 mm). Roll laps of self-adhering sheet underlayment with roller; cover within 14 days.

B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.

C. Expansion Provisions: Allow for thermal expansion of exposed roof specialties.

1. Space movement joints at a maximum of 12 feet (3.6 m) with no joints within 12 inches of corners or intersections unless otherwise shown on Drawings.
2. When ambient temperature at time of installation is between 40 and 70 deg F (4 and 21 deg C), set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures.

D. Fastener Sizes: Use fasteners of sizes that will penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.

E. Seal joints with sealant as required by roofing-specialty manufacturer.

F. Seal joints as required for watertight construction. Place sealant to be completely concealed in joint. Do not install sealants at temperatures below 40 deg F (4 deg C).

3.2 ROOF-EDGE FLASHING INSTALLATION

A. Install cleats and other anchoring and attachment accessories and devices with concealed fasteners.

3.3 ROOF-EDGE DRAINAGE-SYSTEM INSTALLATION

A. General: Install components to produce a complete roof-edge drainage system according to manufacturer's written instructions.

B. Gutters: Join and seal gutter lengths. Allow for thermal expansion. Attach gutters to firmly anchored gutter supports spaced not more than 24 inches (610 mm) apart or as recommended by manufacturer. Attach ends with rivets and seal with sealant to make watertight. Slope to downspouts.

1. Install gutter with expansion joints at locations indicated but not exceeding 50 feet (15.2 m) apart. Install expansion joint caps.

C. Downspouts: Join sections with manufacturer's standard telescoping joints. Provide hangers with fasteners designed to hold downspouts securely to walls and 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1500 mm) o.c.

3.4 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Remove temporary protective coverings and strippable films as roof specialties are installed.

END OF SECTION

1800 River Drive North
Great Falls, MT 59401

TD&H Engineering

406.761.3010
tdhengineering.com

August 2, 2018

Mr. Phil Jagoda, P.E.
Montana Department of Fish, Wildlife & Parks
PO Box 200701
Helena, MT 59620

RE: LIMITED PRE-RENOVATION ASBESTOS INSPECTION
SIX BUILDINGS, GIANT SPRINGS STATE PARK, MONTANA
TD&H ENGINEERING JOB NO. 18-175-070

Dear Mr. Jagoda,

In accordance with our *Agreement for Engineering Services*, TD&H Engineering (TD&H) performed a limited pre-renovation asbestos inspection of six buildings at Giant Springs State Park on July 30, 2018. This asbestos inspection report must be kept on site during all renovation activities.

PROJECT DESCRIPTION

Six buildings at Giant Springs State Park near Great Falls, Montana, are scheduled to receive new roofing: a fish health laboratory, two garages, and three single-family residences. This asbestos inspection was limited to suspect building material that may be impacted by the planned renovations.

ASBESTOS INSPECTION

The Administrative Rules of Montana (ARM) 17.74.354 require an asbestos inspection be completed for all building materials prior to scheduled renovation activities to determine if asbestos-containing materials (ACM) are present. The National Emissions Standards for Hazardous Air Pollutants (NESHAP – 40 CFR 61) and the ARM regulate asbestos due to the respiratory hazard that airborne asbestos fibers present. The inspection was performed by Mr. Oran Grotbo of TD&H, a Montana-accredited asbestos inspector, in accordance with the Environmental Protection Agency (EPA) – Asbestos Hazards and Emergency Response Act (AHERA) regulation 40 CFR 763. Documentation of accreditation is provided in Appendix A.

Building materials were identified, categorized, numbered, and placed into homogeneous areas (HAs) for sample collection and laboratory analysis. The number of samples collected from building materials identified in the inspection is based on the following:

- *Surfacing Materials:* Three samples for spray-applied and trowel-applied surfacing materials between 10 and 1,000 square feet (SF), five samples for surfacing materials between 1,000 and 5,000 SF, and seven samples for surfacing materials over 5,000 SF.

- *Thermal System Insulation:* Three samples from each HA of thermal system insulation, which may include boiler insulation, mudded fittings, and expanded vermiculite insulation.

- *Miscellaneous Materials:* Three samples from each HA of miscellaneous material, such as ceiling tile, sheetrock (drywall), cove base mastic, floor tile and mastics, concrete, roofing materials, and brick mortar.

- *Patching Materials*: At least one sample from each HA of patching material, such as replacement floor tiles or patching plaster, and materials of less than 10 SF in total area.

Eight suspect building materials were identified during the inspection. Bulk samples were collected from the six buildings in accordance with the currently recognized standard protocol developed under AHERA. Bulk samples were placed into containers and shipped to Crisp Analytical Laboratories (CA Labs) in Baton Rouge, Louisiana, for analysis using Polarized Light Microscopy (PLM) in accordance with the EPA Method 600/R-93/116. CA Labs is accredited through the National Institute of Standards and Technology's (NIST) National Voluntary Laboratory Accreditation Program (NVLAP). The point-counting technique employed by CA Labs in the analysis of these samples has a limit of detection of approximately 0.1 percent by volume when asbestos concentrations are below 1.0 percent.

One HA sampled during the inspection was determined by laboratory analysis to contain asbestos in quantities greater than 1%. This HA is shown in Table 1 below.

Table 1
Asbestos-Containing Building Materials
Six Buildings, Giant Springs State Park

Homogenous Area Description	Asbestos Content	NESHAP Category	Location
R2.1 – Flashing Tar	4% Chrysotile	I	Fish Health Laboratory

All other HAs are listed as "None Detected" and are shown in Table 2. The analytical reports provided by CA Labs are provided in Appendix B. Sample identification and locations are shown in Appendix C.

Table 2
Non-Asbestos-Containing Building Materials
Six Buildings, Giant Springs State Park

Homogenous Area (HA)	Sample Description	Location-Room
R1.1	Roofing	Fish Health Laboratory
R1.3	Asphalt Shingle Roofing	Garage #1
R1.4	Asphalt Shingle Roofing	Garage #2
R1.5	Asphalt Shingle Roofing	North House

Table 2 Non-Asbestos-Containing Building Materials Six Buildings, Giant Springs State Park		
R1.6	Asphalt Shingle Roofing	South House
R1.7	Asphalt Shingle Roofing	East House
R1.8	Asphalt Shingle Roofing	East House

Following receipt of the laboratory report, building materials containing asbestos were placed into one of the following three categories using NESHAP criteria:

- *Category I*: Non-friable asbestos-containing packings, gasket, resilient floor covering, and asphalt roofing products – all containing more than 1% asbestos.

- *Category II*: All non-friable materials containing more than 1% asbestos except those found in Category I.

- *Regulated Asbestos-Containing Materials (RACM):* Friable[1] materials, Category I non-friable materials that will or may be subjected to sanding, grinding, cutting, or abrading; or Category II non-friable materials that have a high probability of becoming or have become crumbled, pulverized, or reduced to powder by forces expected to act on the material in the course of demolition/renovation operations.

According to the NESHAP regulation 40 CFR 61.145 (c)(1)(i) and ARM 17.74, any RACM or Category I or II ACM that may be rendered friable during demolition/renovation must be properly abated prior to renovation, and demolition/renovation must be overseen by someone with training as a Competent Person per OSHA. However, NESHAP also requires that any demolition/renovation activities be free of visible dust or fugitive emissions from any regulated substances, including asbestos. All building materials should be adequately wetted to prevent release of particulate. Depending on the type of renovation planned, OSHA and state regulations may require personal air monitoring and the use of engineering controls.

Although it is normally a requirement under the NESHAP regulation that at least ten working days prior to an asbestos abatement project, a written notification must be provided to the EPA, notification will not be required in this case because abatement is for Category I material and less than 10 square feet will be impacted. In the State of Montana, notification of asbestos abatement is sent to the Montana Department of Environmental Quality (MDEQ), Permitting and Compliance Division – Asbestos Control Program. However, the amount of ACM is less than 10 square feet; therefore, permitting from the DEQ will not be required.

RECOMMENDATIONS

The following recommendations for materials containing asbestos are based on our observations and the anticipated scope of renovation.

---

[1] *Friable* means able to be crushed or reduced to powder by hand pressure when dry, or similarly broken or pulverized mechanically.

One area of ACM was identified. The Category I flashing tar is a nonfriable material and if maintained in a nonfriable state may be removed in an unregulated fashion under state and federal law. Any grinding, sawing, abrading, or pulverizing of the Category I asbestos-containing material will render those materials friable and regulated (RACM).

Asbestos removal for Category I or II ACM in a nonfriable "intact" condition must be overseen by a "competent person" holding current Montana accreditation as an Asbestos Contractor/Supervisor. If these materials are removed in a nonfriable manner, asbestos abatement permitting will not be required; however, transport of RACM is regulated and will require a permit. Limited air monitoring may be necessary for OSHA compliance.

If abatement work renders the Category I flashing tar friable, RACM regulations will apply. Asbestos abatement for RACM must be performed by an EPA certified abatement contractor. All personnel involved in the disturbance or removal of building components assumed to contain asbestos or identified as asbestos-containing must be trained according to the requirements set forth in 29 CFR 1926.1101 (k)(9) and 75-2-511, Montana Code Annotated (MCA).

While federal law permits disposal of Category I and II nonfriable ACM in a Class II landfill as general waste, MDEQ considers this material to be "special waste" under Montana Solid Waste Rules. This may require that all categories of ACM must be segregated from the general demolition waste for disposal in the designated asbestos disposal area at the High Plains Sanitary Landfill located north of Great Falls. RACM must be double bagged or double-wrapped in 6 mil plastic sheeting; non-RACM may be single-wrapped. All material must be wrapped "burrito style" with taped seams. The name and contact information of the owner must be provided in each waste package. We recommend that Montana Waste Systems be contacted for clarification prior to disposal.

LIMITATIONS

This asbestos inspection report was prepared based on information gathered during one site visit and interpretations of laboratory analytical results provided by CA Labs. The inspection report has been prepared to provide information concerning the various types of building materials that were considered suspect for containing asbestos and to inform the owner of which building materials tested positive.

Most building components were visible and accessible at the time of our site visit. However, additional suspect materials may be encountered during renovation. TD&H should be contacted if work will disturb materials in addition to those included in this report. TD&H may need to be present during work activities if the potential exists to uncover materials that were not accessible during our site work.

This asbestos inspection report is intended for use by the Montana Department of Fish, Wildlife & Parks and its clients. The scope of services performed by TD&H Engineering may not be appropriate to satisfy the needs of other users, and any use or re-use of this document, or the findings presented herein, is at the sole risk of the user.

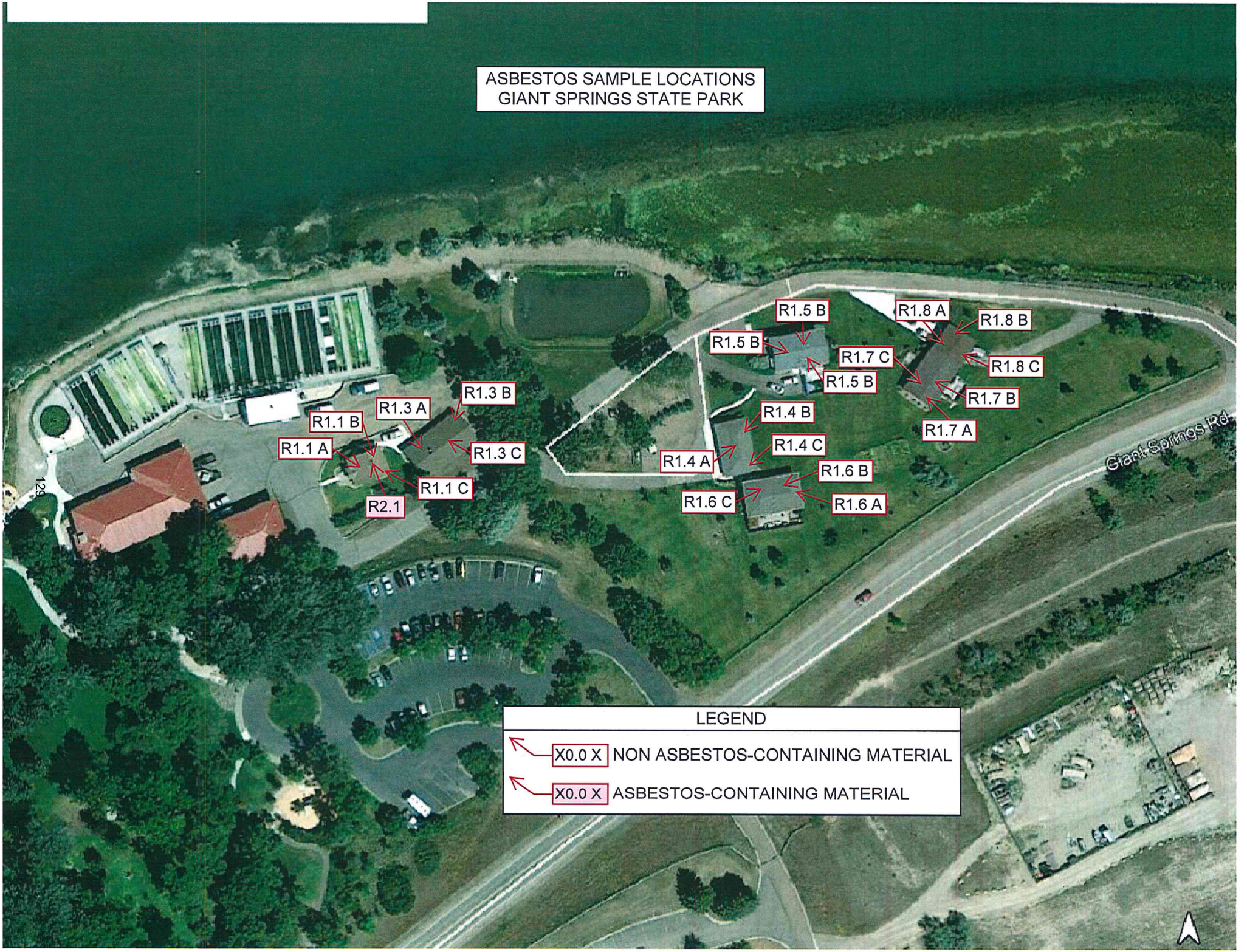
We appreciate this opportunity to provide these industrial hygiene-consulting services to you and look forward to assisting you through the remainder of the project. Should you have questions or need further clarification about information contained herein, please feel free to contact us at (406) 761-3010.

Sincerely,

Laura Hart
MT-4587 Exp. 2019.04.27
Industrial Hygiene Technician
TD&H ENGINEERING

Oran Grotbo
MT-2566 Exp. 2019.04.27
Project Manager
TD&H ENGINEERING

APPENDICES:
A DOCUMENTATION OF ACCREDITATION
B ASBESTOS LABORATORY REPORTS
C ASBESTOS SAMPLE LOCATIONS


ASBESTOS SAMPLE LOCATIONS
GIANT SPRINGS STATE PARK
R1.5 B
R1.8 A
R1.8 B
R1.5 B
R1.7 C
R1.8 C
R1.5 B
R1.7 B
R1.4 B
R1.7 A
R1.3 B
R1.3 A
R1.1 B
R1.1 A
R1.3 C
R1.4 A
R1.4 C
R1.6 B
R1.1 C
R1.6 C
R1.6 A
R2.1
Giant Springs Rd
LEGEND
X0.0 X NON ASBESTOS-CONTAINING MATERIAL
X0.0 X ASBESTOS-CONTAINING MATERIAL